

# Menstrual Hygiene: Knowledge and Practice among Adolescent School Girls of Saoner, Nagpur District

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## ABSTRACT

**Background:** Menstruation is generally considered as unclean in the Indian society. Isolation of the menstruating girls and restrictions being imposed on them in the family, have reinforced a negative attitude towards this phenomenon. There is a substantial lacuna in the knowledge about menstruation among adolescent girls. Good hygienic practices such as the use of sanitary pads and adequate washing of the genital area are essential during menstruation. Menstrual hygiene and management will directly contribute to the Millennium Development Goal (MDG)-2 on universal education and MDG -3 on gender equality and women empowerment.

**Aim and Objectives:** To assess the knowledge and the practices of menstrual hygiene among rural and urban school going adolescent girls.

**Materials and Methods:** A community based, cross sectional study was conducted in January- March, 2011 on 387 school going girls. The present study was undertaken among adolescent school going girls in the field practice area of the Rural Health Unit and Training Centre, Saoner, in the Nagpur district. Three hundred and eighty seven girls of the 8th and 9th standards were purposively selected for the study. A pre-designed, pretested

and structured questionnaire was used in the study. The data collection technique was a personal interview of the study subjects.

**Results:** Only 36.95% of the girls were aware of menstruation before menarche. The major source of information about menstruation for them was found to be their mothers. More than three fourth of the girls in the study were not aware of the cause and the source of the bleeding. A majority of them had knowledge about the use of sanitary pads. The mean age of menarche in the study subjects was  $12.85 \pm 0.867$  years; sanitary pads were used by 49.35% of the selected girls. The practice of the use of old clothes was reported in 45.74% of the subjects. Satisfactory cleaning of the external genitalia was practised by 33.85% of the girls. Three fourth of the study girls practised various restrictions during menstruation. Some menstrual hygiene indices have shown a significant difference in the rural and urban girls.

**Conclusion:** A variety of factors are known to affect menstrual behaviours, the most influential being economic status and residential status (urban and rural). Awareness regarding the need for information about healthy menstrual practices is very important. It is essential to design a mechanism to address and for the access of healthy menstrual knowledge.

**Key Words:** Menarche, Menstruation, Menstrual Hygiene, Practices, Adolescent Girls

## BACKGROUND

Adolescence in girls has been recognized as a special period which signifies the transition from girlhood to womanhood. Menstruation is generally considered as unclean in the Indian society. Isolation of the menstruating girls and restrictions being imposed on them in the family, have reinforced a negative attitude towards this phenomenon [1]. Several studies have reported restrictions during the daily activities. Apart from these, they believe in specified taboos at menarche and menstruation [2].

There is a substantial lacuna in the knowledge about menstruation among adolescent girls. Several research studies have revealed this gap and they showed that there was a low level of awareness about menstruation among the girls when they first experienced it [3], [4], [5]. Social prohibitions and the negative attitude of parents in discussing the related issues openly, have blocked the access of adolescent girls to the right kind of information, especially in the rural and tribal communities [6]. Infections due to lack of hygiene during menstruation have been reported in many studies [6], [7], [8], [9].

Many studies have revealed that most of the adolescent girls had incomplete and inaccurate information about the menstrual

physiology and hygiene. It also revealed that mothers, television, friends, teachers and relatives were the main sources which provided information on menstruation to the adolescent girls [6], [10], [11]. Good hygienic practices such as the use of sanitary pads and adequate washing of the genital area are essential during menstruation. Women and girls of the reproductive age need access to clean and soft, absorbent sanitary products which can in the long run, protect their health [2]. Menstrual hygiene and management will directly contribute to (MDG)-2 on universal education, MDG-3 on gender equality and women empowerment [12]. However, the attention on this issue is far from sufficient and even the literature on gender mainstreaming in the sanitary section is silent on the issue of menstrual management [13]. A key priority for women and girls is to have the necessary knowledge, facilities and the cultural environment to manage menstruation hygienically and with dignity. Very few studies have included the detailed aspects of the menstrual practices among adolescent girls. It was therefore considered as relevant to investigate the menstruation related knowledge and practices among the school going adolescent girls. The data about their level of knowledge and the practices which are followed by them with respect to menstruation are beneficial for planning a program for improving the awareness level with respect

to their life processes and promoting their quality of life. Hence, the present cross sectional study was carried out.

## OBJECTIVES

1. To assess the knowledge and the practices of menstrual hygiene among rural and urban, school going adolescent girls.
2. To assess the restrictions which were practised by adolescent school girls during menstruation.

## MATERIALS AND METHODS

**Study Design:** Community based cross sectional study.

**Study Setting:** The present study was undertaken among the adolescent school going girls in the field practice area of the Rural Health Unit and Training Centre, Saoner, in the Nagpur district. This centre is located in an urban area of the Saoner Taluka. However, the students from rural areas also attended the schools which were included in this study setting. In this study area, there was only a single girl's school. Hence, the Jawahar Kanya School was purposively selected for the study. Some study subjects from the Bhalerao High School were also enrolled in the study.

**Study Population:** Three hundred and eighty seven girls from the above mentioned schools, of the 8th and 9th standards, were selected for the study.

**Study Tools and Technique:** A pre-designed, pretested and structured questionnaire was used in the study. The data collection technique was a personal interview of the study subjects.

**Methodology:** After taking permission from the school authorities, the class teachers of the 8th and 9th standards were explained the purpose of the study, a rapport was built up with the girl students and their verbal consents were obtained. The purpose of the study and the nature of the information which had to be furnished by the study subjects were explained to them. This pre-designed, pretested and structured questionnaire included topics which were related to the awareness about menstruation, the sources of information regarding menstruation, the hygienic practices during menstruation and the restricted activities practice during menstruation. The demographic information including family details, parent's education, occupation, housing conditions, house type, toilet facility, and water supply in the toilet were enquired and then documented. The chronological age and the age at menarche were also elucidated. The menstrual hygiene questionnaire included queries about the type of absorbent which was used, its storage place, the use of clean or unclean napkins and the frequencies of changing and cleaning them. The information about personal hygiene included washing and bathing during menses, the practice of wearing stained clothes, etc. The research protocol was approved by the Institutional Ethics Committee, Government Medical College, Nagpur.

## RESULTS

[Table/Fig-1] presents the demographic details of the study subjects. It was evident that the mean age of the study subjects who were studied was  $13.82 \pm 0.832$  years, while their age range was 12-17 years. A majority of the subjects (62.27%) belonged to urban residences and 37.73% resided in the rural areas. The percentage of the girls who were above the poverty line was 59.69% and those who were below the poverty line were 40.31%. A majority of the mothers of the study girls were educated and 7.49% of the mothers were illiterate.

Characteristics	No	%
<b>Age in years</b>		
12	13	3.36
13	125	32.30
14	173	44.70 (Range 12-17 years)
15	69	17.83
≥16	7	1.81
<b>Residential status</b>		
Urban	241	62.27
Rural	146	37.73
<b>Economic status</b>		
APL	231	59.69
BPL	156	40.31
<b>Education of mother</b>		
Illiterate	29	7.49
Primary	49	12.66
Middle	60	15.50
Secondary school	160	41.86
Higher secondary	77	19.90
Degree and above	10	7.49

**[Table/Fig-1]:** Demographic characteristics of the study subjects (N = 387)

The [Table/Fig-2] data reveals that the mean age of menarche in the study subjects was  $12.85 \pm 0.867$  years. However, in urban areas, the mean age of menarche among the girls was earlier ( $12.76 \pm 0.936$ ) years and in the rural areas, it was later ( $12.86 \pm 0.0.938$  years). It was evident that only 143 (36.95%) of the participants were aware about menstruation before menarche and the most important sources of the information were mothers, while sisters, friend and teachers. It was observed that 312 (80.62%) of the study subjects were not aware of the cause of the bleeding, 71 (18.35%) girls believed that it was a physiological process and 4 (1.03%) believed it as a curse from God. A majority of the girls [295 (76.23%)] were not aware of the source of the menstrual bleeding. Only 10 (2.58%) were aware that the source of the

Variable	No	%
<b>Age of menarche (years)</b>		
≤ 11	24	6.20
12	101	26.10
13	182	47.03
14	65	16.80
≥15	15	3
<b>Awareness about menstruation before menarche</b>	143	36.95
<b>Source of information before menarche* (n=143)</b>		
Mother	102	71.33
Sister	34	23.78
Friend	26	18.18
Teachers	17	11.89
Others	18	12.59
<b>What is the cause of menstruation?</b>		
Don't Know	312	80.62
Physiological process	71	18.35
Curse of god	4	1.03
<b>From which organ does the menstrual blood comes?</b>		
Don't Know	295	76.23
Urethra/Vagina	82	21.19
Uterus	10	2.58
<b>What absorbent ideally to be use during menstruation?</b>		
Sanitary pad	296	76.49
Cloth	91	23.51

**[Table/Fig-2]:** Information about menarche and perception about menstruation (N=387)

menstrual bleeding was the uterus. A majority 296 (76.49%) of the participants were aware of the use of sanitary pads.

[Table/Fig-3] reveals that the study on the practices during menstruation showed that 191(49.35%) girls used sanitary pads during menstruation, 177 (45.74%) girls used old cloth pieces and 19(4.90%) used new pieces of clothes. In urban girls, the use of sanitary pads was 60.58% and in rural girls, it was 30.82%; this difference was found to be statistically significant ( $p = 0.001$ ). The use of old clothes was 62.33% in the rural girls and 35.68% in the urban girls and this difference was found to be statistically significant ( $p = 0.001$ ).

The cleaning of the external genitalia was unsatisfactory in 58.09% of the urban girls and it was unsatisfactory in 79.45% of the rural girls. This difference was also found to be statistically significant ( $p = 0.001$ ). More girls from the urban areas maintained a satisfactory cleaning practice of the external genitalia as compared to the rural girls and this difference was statistically significant ( $p = 0.001$ ). For the cleaning purpose, 225 (58.18%) girls used soap and water, 157 (40.57%) used only water and 5 (1.29%) used water and antiseptics. There was no statistically significant difference between the rural and urban girls with regards to the use of materials for the cleaning of the external genitalia during menstruation. A majority [135 (34.88%)] stored it in the bathroom, 133(34.37%) of the girls did not store the absorbent, and 96 (24.81%) stored it with the routine cloth. No statistically significant difference was observed

in the urban and rural girls, which pertained to the storage of the absorbents, except those which were stored with the routine cloth (0.001). With respect to the method of disposal of the used absorbent, it was found that a majority of the girls; 202 (52.20%) burned it, 154 (39.79%) threw it with the routine waste and 26 (6.72%) used other methods of disposal.

In 46.89% of the urban and in 60.96% of the rural girls, the method of disposal of the used absorbent was found to be burning. This difference was found to be statistically significant ( $p = 0.002$ ). A proportionately large number (45.23%) of the urban girls and 12.33% of the rural girls disposed it by throwing it with the routine waste. This difference was also found to be statistically significant (0.001). In cases of reused cloth, the places of its drying which were observed, was outside the house in sunlight in 78 (51.32%) subjects, 72 (47.37%) dried them inside the house, and, 8(4.94%) subjects dried them outside without sunlight. No statistically significant difference was observed in the urban and rural girls with regards to the practice of the drying of the used absorbent. A majority of the study subjects 343 (84.63%) preferred to change the absorbent at home. However, 44 (11.37%) changed the absorbent at their schools. No statistically significant difference was observed in the urban and rural girls with regards to the place of change of the absorbent. The range of the total number of absorbents which were used during the last menstrual period was 1-18 and the median number of the absorbents which were used by each

Menstrual hygiene practices	Percent of girls (n = 387) No (%)	Urban (n = 241) No (%)	Rural (n = 146) No (%)	P
<b>Use of material during menstruation</b>				
Sanitary pad	191 (49.35)	146 (60.58)	45 (30.82)	0.001
Old cloth	177 (45.74)	86 (35.68)	91 (62.33)	0.001
New cloth	19 (4.90)	9 (3.73)	10 (6.85)	0.066
<b>Cleaning of External genitalia</b>				
Satisfactory*	131 (33.85)	101 (41.91)	30 (20.55)	0.001
Unsatisfactory**	256 (66.15)	140 (58.09)	116 (79.45)	0.00
<b>Material used for cleaning of External genitalia</b>				
Only water	157 (40.57)	95 (39.42)	62 (46.47)	0.554
Soap and Water	225 (58.18)	143 (59.34)	82 (56.16)	0.540
Water and antiseptic	5 (1.29)	3 (1.24)	2 (1.37)	0.916
<b>Storage of absorbent</b>				
Bathroom	135 (34.88)	75 (31.12)	60 (41.09)	0.045
Don't store	133 (34.37)	93 (38.58)	56 (38.36)	0.607
Store with routine cloth	96 (24.81)	61 (25.31)	25 (17.12)	0.001
Others	20 (5.17)	12 (4.99)	9 (6.16)	0.888
<b>Method of disposal</b>				
Burn it	202 (52.20)	113 (46.89)	89 (60.96)	0.002
Throw it in routine waste	154 (39.79)	109 (45.23)	18 (12.33)	0.001
Others (Don't dispose/Flush/Hide)	26 (6.72)	19 (7.88)	39 (22.60)	0.020
<b>Places of drying (n=152)</b>				
Outside house in the sunlight	78 (51.32)	48 (52.17)	30 (50.00)	0.236
Inside house	72 (47.37)	43 (46.73)	29 (28.33)	0.621
outside house without sunlight	02 (1.31)	1 (1.09)	1 (1.67)	0.634
<b>Change of pad in school</b>				
Yes	44 (11.37)	30 (12.45)	14 (9.59)	0.390
No	343 (86.63)	211 (87.54)	132 (90.41)	0.390
<b>No of absorbent used during last menses (N = 387)</b>				
1 to 6	200 (57.68)	121 (50.20)	79 (54.10)	0.589 NS
≥7	187 (52.32)	120 (49.80)	67 (55.90)	
Average No. of absorbent/menstruation		7.28 ± 3.40	6.72 ± 3.02	0.101 NS
<b>Toilet facility at home</b>				
Yes	335 (86.56)	209 (86.72)	126 (86.30)	0.0138
No	52 (13.43)	32 (13.28)	20 (13.70)	

[Table/Fig-3]: Practice of menstrual hygiene

\*Satisfactory: Cleaning of external genitalia more than two times in a day during menstruation.

\*\*Unsatisfactory: Cleaning of external genitalia less than or equal to two times in a day during menstruation.

Restrictions	Percent of girls N = 387 No (%)	Urban N = 241 No (%)	Rural N = 146 No (%)	P
Not practiced	102 (26.36)	68 (28.22)	34 (23.29)	0.286
Practiced for*	285 (73.64)	173 (71.78)	112 (76.71)	
Attend religious functions	270 (94.74)	163 (67.63)	107 (73.29)	0.241
Household work	102 (26.36)	60 (24.90)	42 (28.77)	0.402
Separated	128 (33.07)	65 (26.97)	63 (43.15)	0.001
Touch stored food	130 (33.59)	65 (26.97)	65 (41.54)	0.001
Seat on threshold	17 (4.39)	13 (5.39)	4 (2.74)	0.00
Sleep on routine bed	102 (26.36)	57 (23.65)	45 (30.82)	0.121
Touch family members	48 (12.40)	12 (4.97)	36 (24.66)	0.001
Play outside	89 (23.00)	47 (19.50)	42 (28.77)	0.036
Not allowed to work outside	85 (21.96)	45 (18.67)	40 (27.40)	0.044
Not allowed to go to school	20 (5.17)	9 (3.73)	11 (7.53)	0.885

**[Table/Fig-4]:** Restrictions practiced during menstruation.  
\*Multiple responses.

subject was (8 ± 3.18) pads. This difference was not found to be statistically significant. A majority of the subjects 335 (86.56%) had toilets at home.

[Table/Fig-4] depicts the different types of restrictions which were practiced during menstruation. Only 102 (26.36%) of the subjects did not practice any restrictions. Two hundred and eighty five (73.64%) girls practiced different restrictions during menstruation. Among them, 173 (71.78%) girls did not attend any religious functions or visit temples, 102 (26.36%) girls were not allowed to do the household work, 102 (26.36%) girls were not allowed to sleep on the routine bed, 97 (24.81) girls were not allowed to touch anybody, and 20 (5.17%) girls were not allowed to attend their schools during menstruation.

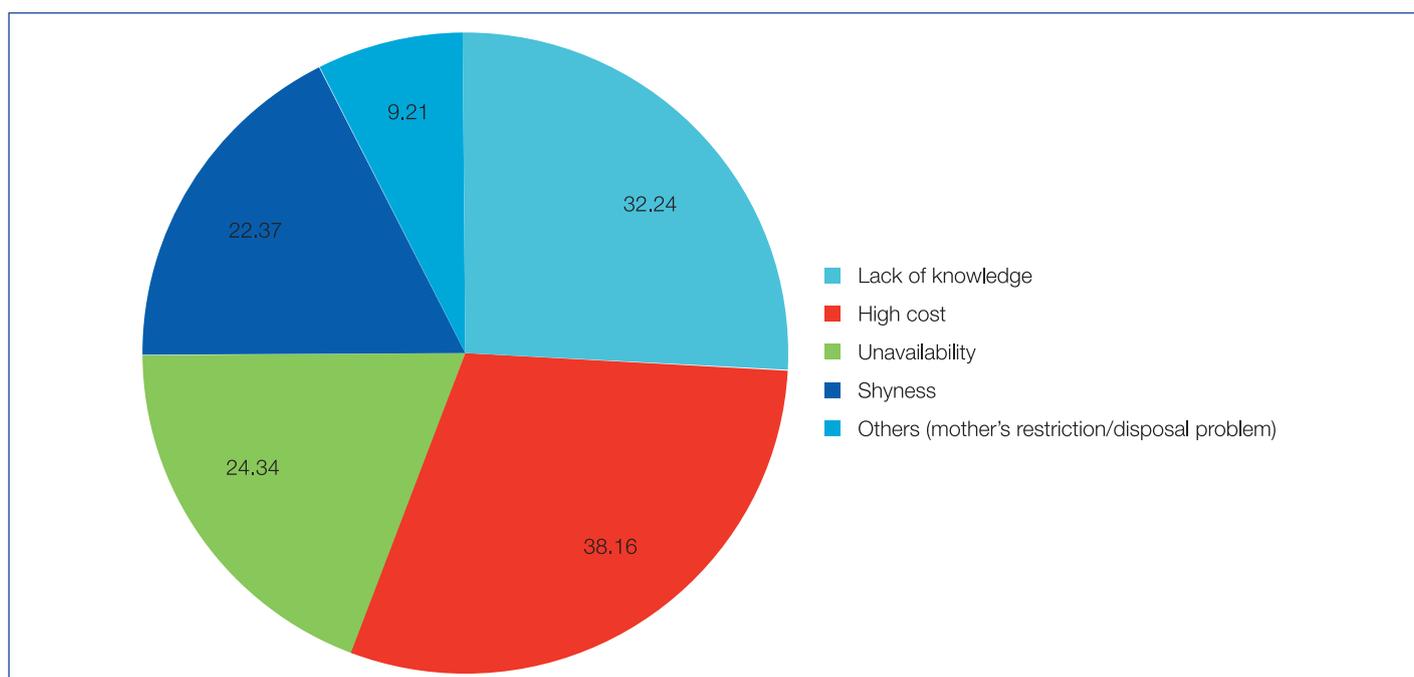
However, the urban and rural difference was found to be statistically significant with regards to the separation of the girls from others, restrictions in touching stored food, being seated on the threshold of the house and restrictions in touching family members and in

playing and working outside (p = 0.001). No significant difference was observed in the urban and rural girls, which pertained to going to school.

### DISCUSSION

This study reveals that the age of the menstruating girls ranged from 12-17 years, with the maximum number of girls being between 13-14 years of age. Another researcher reported that the age of the menstruating girls ranged from 12-17 years, with the maximum number of girls being between 13-15 years of age [10]. In the present study, the mean age at menarche was found to be 12.85 years, whereas the mean age for menarche was calculated to be 12.8, 13.2 and 13.7 years, as reported by other researchers [5], [11-15]. However, in urban areas, the mean age of menarche among the girls was earlier (12.85±0.867) years, as against the earlier reported age of 12-14 years in India [16-21].

Prior awareness regarding menarche and menstruation among girls is generally low in most of the cultures. It was evident that



**[Table/Fig 5]:** Reasons for not using sanitary pad\* n = 196  
\*Multiple responses.

only 36.95% of the participants were aware of menstruation before menarche. Menarche is an important event in girls at the threshold of adolescence and ideally, mothers should be the main informants at this tender age of the girls [Table/Fig-2]. However, mothers were the first informants for 71.33% of the girls. The fewer gaps may be due to the high literacy status of the mothers and small inhibitions for the mothers in talking to their daughters regarding the significance, hygienic practices and a healthy attitude towards menstruation. The latter practice will go a long way in maintaining a healthy reproductive tract for each and every girl child, who after she becomes a mother, will disseminate this healthy message to her offspring. Studies which were conducted by other researchers reported that the first informant was the mother in 40.67% and 37.5% of the subjects [6], [11], [17], [23], [24]. Other sources of information were sisters, friends and teachers for the study girls. These findings were consistent with those of other studies [5], [6], [11]. It was observed in this study, that only 18.35% of the girls believed menstruation to be physiological process, whereas in a similar study, 86.25% believed it to be a physiological process [11]. It was very sad to observe in the present study, that most of the girls (80.62%) did not know the cause of the menstrual bleeding. Only 2.5% of the study girls stated that menstrual bleeding came from the uterus and 76.23% were unaware of the source of the menstrual bleeding. These findings were consistent with other study [13]. One fourth of the girls were ignorant about the use of sanitary pads during menstruation. The above observations may be due to lack of proper health education programs in the school, which focussed on the menstrual health and hygiene among girls.

The hygiene related practices of women during menstruation are of considerable importance, as they affect their health by increasing their vulnerability to infections, especially infections of the urinary tract and the perineum. Studies which were reported from India and other developing countries have highlighted the common practices which have prevailed among the adolescent females [11], [14]. The type of absorbent material which is used is of primary concern, since reuse of the material could be a cause for infection if it is improperly cleaned and poorly stored [14]. This study revealed that most of the rural girls used old clothes as menstrual pads and that they reused the clothes after washing them with soap and water. They discarded the clothes by burning them or throwing them with the routine waste after using it for a few months. Very few girls from the rural areas used sanitary pads which were available in the market; possibly due to their low socioeconomic status, lesser availability of the pads at the rural areas and lack of awareness. Other researchers, in their studies, also reported that more than three fourth of the girls used cotton clothes and reused them after washing them [5], [6], [16]. A study from India indicated the use of old cloth material as a frequently used absorbent (82.5%) among rural and (72.2%) urban girls. A study from India reported that a majority of the rural school girls who used old clothes, sanitized the materials by boiling and drying them before reuse [15], [16]. It was evident that such practices offered protection against the possible infections. In our study, 41.86% girls used cloth material as menstrual absorbents, though the practice of cleaning or sanitizing it was not appraised. The place of storage of the pads/ napkins is equally important for their cleanliness; especially the practice of storing them in bathrooms is disturbing, since it could give rise to the harbouring of dust and insects. The proportion of the participants who used the bathroom as a storage place was as high as 49.8% [15]. In other studies,

the practice of storing the absorbents in the bath room was as low as 21.1% [17]. Literature information regarding the adverse health effects due to the bathroom storage is meager [15]. In the present study, a small proportion of the girls changed the pads at school hours (11.37%). Other authors reported that 20.6% of the girls changed the pads at school hours [17].

The probable reason for the girls not changing the pads could be ignorance and lack of facilities. Our findings are in accordance to those of other studies which were reported from India [17]. Further, the practice of using old clothes was found to be common among girls in the present group (45.74%). It could be because of the lack of knowledge about healthy practices in young girls. Based on his study, Narayana et al [15], suggested that urban girls had better awareness about menstrual hygienic practices than their rural counterparts. This study shows that 57.36% of the girls preferred sanitary pads as a menstrual absorbent [Table/Fig-3]. The apparent reasons for not using sanitary pads, which were observed in this study, were lack of knowledge in 30.25%, high costs in 30.85%, unavailability and shyness. Other studies which were conducted by other researchers reported that, 11.25%-20% of the girls used sanitary pads [5], [11], [15], [16], [22-24]. Cleanliness of the external genitalia was unsatisfactory (the frequency of cleaning the external genitalia was nil or less than 2 times per day) in case of 256 (66.15%) girls. A significantly lesser number of rural girls cleaned their genitalia satisfactorily. The reasons for not cleaning the external genitalia were lack of knowledge about menstrual hygiene and privacy, the latter being an important problem. A study which was conducted by another author revealed that only 34.33% of the girls satisfactorily cleaned their genitalia [6], [17]. Soap and water were the commonest materials which were used by 223 girls (57.23%) for cleaning the external genitalia. In the present study, the commonly practiced methods of disposal of the used absorbent were, wrapping it in paper and either disposing it in a place which was used for solid waste disposal or burning it. The same findings were reported by other studies [6], [11], [15], [17].

Different restrictions were practised by most of the girls in the present study, possibly due to the different rituals in their communities; the same were practised by their mothers or other elderly females in the family, due to their ignorance and false perceptions about menstruation. The practice of the restrictions was significantly more among the rural girls as compared to the urban girls. This difference may be due to the lack of awareness in the rural areas and due to the association of more stigmas with menstruation in the rural areas as compared to the urban areas. These findings were consistent with those of other studies [6], [11], [15].

## RECOMMENDATIONS AND CONCLUSION

This study has highlighted the need of adolescent girls to have accurate and adequate information about menstruation and its appropriate management. Formal as well as informal channels of communication such as mothers, sisters and friends, need to be emphasized for the delivery of such information. In view of the vital role of the mothers, it is very important that the mother be armed with the correct and appropriate information on reproductive health, so that she can give this knowledge to her growing girl child. It is also essential for the teachers, who may not have the necessary skills to impart reproductive health education, including menstrual hygiene to their students. They have to be given requisite skills – usually through training or workshops. Much more efforts are needed to curb the misbeliefs and taboos among the adolescent school girls.

There is a strong need to address issues like the restrictions which are imposed on or practiced by the adolescent school girls in the rural and urban areas. Considering the lesser use of sanitary pads by the urban and rural adolescent girls, there is a need to mobilize adolescent girls to use sanitary pads. The reproductive health implications of menstruation and its management, and its effect on the quality of life which permeates school and other social activities are many for the adolescent school girls. These invariably call for an urgent address by all the stakeholders-family, school community, civil society, and service providers to entrench correct menstrual perceptions and to enable proper hygiene practices amongst this segment of the population. In India, all organizations which work on reproductive health should work adequately on the neglected issue of menstrual hygiene and management to achieve "Sanitation for dignity and health" for all women (The Delhi Declaration, SACOSAN III 2008). This essentially will contribute to the attainment of some MDG, particularly 2, 3, and 7.

## CONCLUSION

It can be said that among the adolescent school girls in both the urban and rural areas, the knowledge on menstruation is poor and the practices are often not optimal for proper hygiene. Menstrual hygiene is an issue needs to be addressed at all levels. A variety of factors are known to affect menstrual behaviours, the most influential ones being economic status and residential status (urban and rural). Awareness regarding the need for information on healthy menstrual practices is very important. It is essential to design a mechanism to address and for the access of healthy menstrual practices.

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## ABBREVIATIONS

BPL	Above poverty line
APL	Below poverty line
MDG	Millennium development Goal

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